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2018 CONCURRENCY REPORT

An Annual Report on the Level-of-Service (LOS) of the County's Arterial Road Network from January 1, 2018 to December 31, 2018

Prepared by the Transportation and Environmental Services (TES) Division of the Department of Public Works

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Executive Summary

This Concurrency Report details the Level-of-Service (LOS) of Snohomish County's arterial road system. This report, where possible and known, identifies strategies that may be implemented by either the Department of Public Works (DPW) or another jurisdiction to remedy the LOS deficiencies.

Summary of Arterial Units at Risk of Falling into Arrears, in Arrears or at Ultimate Capacity

Status of Arterial Units	2017	2018
Arterial Units at Risk of Falling into Arrears	18	13
Arterial Units in Arrears	0	0
Arterial Units at Ultimate Capacity	3	3

The number of Arterial Units in Arrears has remained at zero since 2011 and the number of Arterial Units at Ultimate Capacity has remained at 3 since 2007.

List of Acronyms Used in This Report

AU	Arterial Unit
AUAR	Arterial Unit At Risk of Falling into Arrears
AUIA	Arterial Unit in Arrears
DPW	Snohomish County Department of Public Works
IRC	Inadequate Road Condition
IS	Intersection Improvements
LOS	Level-of-Service
N	New Arterial Road Alignment
N/R	Not Required. The information was deemed not required based on the LOS being at a level high enough not to warrant concern.
SR	State Route (State Highway under the jurisdiction of the WSDOT)
TSA	Transportation Service Area
WSDOT	Washington State Department of Transportation
TIP	Snohomish County's six-year Transportation Improvement Program. (The TIP referenced in this report is always the current TIP that is usually adopted in November of the prior year.)
U	Urban
R	Rural
W	Widening of an Existing Arterial Road

Review of the Concurrency Management System

Consistent with the requirements of the Growth Management Act (GMA), the concurrency requirements of Snohomish County Code (SCC) Chapter 30.66B, and the associated Department of Public Works' administrative rules, the County is required to determine whether or not capacity exists (and will likely exist within six years) when a proposed development adds its new trips to the road system. This concurrency determination includes two important considerations:

1) An estimate of existing traffic volumes and all new traffic that will be added to the road system from other developments that have been deemed concurrent (pipeline trips), and;
2) The additional capacity on the road system that will result from any system improvements which will be constructed and open to the public within the next six years.

Determining Level-of-Service (LOS)

Snohomish County uses a four-tiered approach to determining the LOS on the road system.

1) Screening: Current peak-hour traffic counts are compared with estimated capacities for each arterial unit and average daily traffic (ADT) counts are compared with the thresholds adopted in Chapter 30.66B SCC.
2) Monitoring: Monitoring consists of more frequent traffic counts and analysis of the traffic conditions.
3) Operational Analysis: Operational analysis consists of travel-time studies and/or results from traffic models to determine if the LOS on an arterial unit is currently operating below the adopted standard.
4) Future Level-of-Service Forecast: A future LOS forecast is used to determine if the LOS within six years is likely to be operating below the adopted standard with the addition of new trips expected to be added to the road system by developments already deemed concurrent (pipeline trips).

A review of Snohomish County's concurrency management system is available on the County's web site. The web site includes previous concurrency reports, and many other documents related to the County's traffic mitigation and concurrency regulations including DPW Rules 4224.

LOS Designations and Determination Methods

URBAN [1]	DETERMINATION MEATHOD		RURAL [2]
A	Screening	Screening	A
B		Monitoring	B
C		Operational Analysis	C
D	Monitoring	Fails	D
E	Operational Analysis		
F	Fails		

[1] A lower travel speed may be used in conformance with SCC 30.66B.102.

[2] The level of service for rural arterials designated in the comprehensive plan as carrying urban traffic shall be evaluated utilizing the level of service standard for urban arterials.

Arterial Unit Status Definitions

Arterial Units at Risk of Falling into Arrears (AUAR)

Arterial units are considered to be at risk of falling into arrears when they are close to being deficient, i.e. 1-2 mph above LOS F for urban roads or LOS D for rural roads. For arterial units meeting these criteria, DPW utilizes the Operational Analysis method to determine the existing and future (forecast) LOS, and monitors the units with travel time and delay studies conducted on an annual basis (see Determining Level-of-Service (LOS) above).

Arterial Units in Arrears (AUIA)

Snohomish County Code defines an Arterial Unit in Arrears (AUIA) as any arterial unit operating, or within six years is forecast to operate, below the adopted LOS standard unless a financial commitment (or strategies) is in place for improvements to remedy the deficiency within six years. The LOS for the urban arterials is LOS F and for the rural arterials is LOS D. DPW utilizes the Operational Analysis method to determine the existing and future (forecast) LOS, and monitors the units with travel time and delay studies conducted on an annual basis.

Arterial Units at Ultimate Capacity (AUUC)

SCC 30.66B.110(1) states, "When the county council determines that excessive expenditure of public funds is not warranted for the purpose of maintaining adopted LOS standards on certain arterial units the county council may designate, by motion, such arterial unit as being at ultimate capacity. Improvements needed to address operational and safety issues must be identified in conjunction with such ultimate capacity designation."

Occasionally, the contributing factors associated with an arterial unit considered to be "At Risk", can be attributed to another jurisdictions roadway. When this is the case, the solution to improve the LOS is entirely under the control of the other jurisdiction. For this type of situation the County has little, if any, control over the solution, and if the other jurisdiction will not agree to the County's solution or the interaction between the two roads has been optimized to the maximum extent, the County is forced to accept the existing condition. One option available, besides determining the AU At Risk, is to designate the AU at Ultimate Capacity when the provisions of SCC 30.66B.110(2)(c) are met.

Concurrency Report

This concurrency report covers the period from January 1st through December 31st of the report year and details the Level-of-Service (LOS) of Snohomish County's arterial road network. The report, where possible and known, identifies strategies that may be implemented by either the Department of Public Works (DPW) or another jurisdiction to remedy LOS deficiencies.

Number of Arterial Units

Snohomish County currently has 273 urban and rural arterial units and of that total, 236, or 86.6%, have not reached the ADT thresholds established in SCC 30.66B.101 that trigger the requirement for screening and monitoring, and are operating at or above LOS D for urban arterial and LOS C for rural arterials. See Table 1 Summary of Level-of-Service (LOS) Status on page 17 below for additional information.

Arterial Units at Ultimate Capacity

The County Council has designated the following arterial units at Ultimate Capacity:

Snohomish-Woodinville Road in TSA E (AU# 211)

This urban arterial unit is located in TSA E and was designated at Ultimate Capacity in 1997.

164th Street SW/SE east of Interstate 5 (AU# 218)

This urban arterial unit is located in TSA D and was designated at Ultimate Capacity in 2007.

164th Street SW west of Interstate 5 (AU# 219)

This urban arterial unit is located in TSA D and was designated at Ultimate Capacity in 2007.

Arterial Units in Arrears

As of the date of this report, there are no arterial units in arrears.

List of Arterial Units At Risk of Falling into Arrears

The following is a list of those arterial units considered to be at risk of falling into arrears. The Arterial Units identified below are divided in to Urban and Rural sections. Each section is then listed by TSA in descending order from TSA A to TSA F, then by the AU number (lowest to highest). See the definition for an "Arterial Unit at Risk of Falling into Arrears" on page 5. A map showing the arterial units locations is found in Appendix A.

Urban / Rural	TSA	AU #	Arterial Name and Limits
U	C	353	Airport Way from SR 9 to Snohomish City Limits
U	D	204	35th Ave SE from 168 ST SE to Seattle Hill Road

Urban / Rural	TSA	AU #	Arterial Name and Limits
U	D	225	148th / Jefferson Way /150th St SW / Madison Way from SR 99 to Ash Way
U	D	228	Airport Road/128th St SW from SR 99 to I-5 SB On & Off Ramps
U	D	287 / 415[1]	36TH Ave W from Lynn City Limits to 164th Street SW to 148th St SW
U	D	293	Gibson Road from SR 99 to 128TH ST SW
U	D / F	457 / 458[1]	Maple Rd/178th St SW from Ash Way to Larch Way
U	E	471	Yew Way from 196th St SE to SR 524
U	F	217	North Road from SR 524 to 176th Pl SW
U	F.	220	Alderwood Mall Parkway from 164TH ST SW to LYNN C/L
U	F	278	Poplar Way from Lynnwood C/L to Brier C/L
R	E	330	Broadway Ave from SR 524 to 164TH ST SE

Breakdown of the Analysis of Arterial Units At Risk of Falling Into Arrears

The following is a comprehensive analysis of those arterial units considered to be at risk of falling into arrears. The analysis shows the AU number, AU name and limits, TSA and date the last travel time and or forecast were performed, and the existing and forecast LOS with travel speeds. The Arterial Units identified below listed by TSA in descending order from TSA A to TSA F, then by the AU number (lowest to highest). Arterial Units identified with two numbers, i.e. 287/415, are done so because they have a TSA boundary dividing the AU and are counted as two arterial units when determining the total number of arterial units. In some special cases two arterial units are listed with two numbers because one of the arterials is too short to accurately measure LOS and must be combined with another arterial.

The following is an example of the tables used below for each arterial to identify the Existing and Forecast LOS.

Existing LOS					Forecast LOS			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
B	29.23	E	13.49	**NB**	B	29.20	E	13.50
D	21.67	E	16.63	**SB**	D	21.60	E	16.60

This side represents the Existing AM & PM LOS and Travel Speed on the arterial based on the most current travel time study.	Direction of travel	This side represent the Forecast AM & PM LOS and Travel Speed on the arterial determined with the most current travel time study and a Future Level of Service Forecast which looks out six years and is based on the existing LOS, pipeline trips, and any identified programed road improvement project(s).

[1] Arterials with dual number designations are counted as two arterials

TSA'S A and B

There are no arterials in TSA's A, and B that are at risk of falling into arrears.

TSA C

(AU# 353) Airport Way from SR 9 to Snohomish City Limits

This urban arterial unit is in TSA C. A travel time study was performed on March 13, 2018 for AM and September 20, 2018 for the PM and a subsequent forecast analysis. The travel time studies and forecast analysis indicated that the existing and forecast travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (Without Project Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
C	25.89	F	9.86	**NB**	C	25.90	F	10.80
D	19.09	D	21.16	**SB**	D	19.00	D	21.40

The major contributing factor for the existing and forecast LOS F in the PM NB direction is the County controlled traffic signal at the intersection of Lowell-Snohomish River Road and Airport Way just north of Harvey Field and the City of Snohomish controlled signal at the 1st Street intersection at the northern end of the AU, and the railroad crossing just north of the intersection of Lowell-Snohomish River Road. This is the first time this AU has been identified with an LOS of F which may be an anomaly and given its significance, DPW will perform two more additional travel time studies at different times of the year to confirm the F LOS. The NB PM movement is what puts Airport Way at risk of falling into arrears. The bottleneck is at the Lowell-Snohomish River Road / Airport Way intersection where the ADT has been increasing, with the biggest increase in the AM WB movement from Airport Way to Lowell-Snohomish River Road and the NB PM movement from Lowell-Snohomish River Road to Airport Way.

WSDOT has a future project to widen SR 9 from Marsh Rd to 2nd Street to four lanes including constructing a second bridge over the Snohomish River. Funding for the project will come from the Connecting Washington Funding Package and the project is anticipated to be completed by the end of 2026. This project will provide relief and improve the LOS on Airport Way caused by the NB SR 9 traffic using the AU to divert around SR 9.

DPW will continue to monitor this arterial unit, work at optimizing the timing between the County signal and the City of Snohomish signal to the extent possible and reanalyze the AU after the WSDOT project has been completed.

TSA D

(AU# 204) 35TH Ave SE from 168 ST SE to Seattle Hill Road

North Section of the 35th Ave SE Corridor (see page 15 for the entire 35th Ave SE Corridor analysis):

AU# 204) 35th Ave SE from 168th St SE to Seattle Hill Road is located in TSA D. A travel time study was performed on March 20, 2018 for the AM and PM and a forecast analysis was completed. The travel time study and forecast indicated that the existing and forecast travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (With Project Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
B	30.17	F	9.44	**NB**	C	27.20	D	17.87
B	31.55	B	32.32	**SB**	B	30.20	B	30.70

This arterial unit is the northern leg of what is referred to as the 35th Ave SE Corridor. Phase 1 of a two phase project to widen this AU is under construction (ACPTIP Project E28.06). Construction of Phase I will consist of widening the portion of the 35TH Ave SE corridor from 180th St SW to Seattle Hill Road to 2 lanes plus a middle turn lane, with bike lanes, curb, planter, and sidewalk on both sides.

This project will be completed by mid-summer 2019 and will improve the LOS to better than the required standard. Sometime during the 4th quarter of 2019 after construction has been completed DPW will perform a travel time and forecast study on the AU to determine its new LOS.

(AU# 225) 148th St SW / Jefferson Way /150th St SW / Madison Way from SR 99 to Ash Way

This urban arterial unit is in TSA D. A travel time study was performed on September 18, 2018 for the AM and PM and a subsequent forecast analysis was completed. The travel time study and forecast indicated that the existing and forecast travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (Without Projects Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
D	23.23	D	19.23	**EB**	D	21.10	F	11.20
C	20.21	D	17.50	**WB**	D	17.70	E	13.40

The major contributing factors for the forecast LOS F in the PM EB direction are at the ends of the AU. At the west end it is the short distance between the State signal controlled intersection at SR 99 and the County controlled signal at the intersection at 35th Ave W and increased traffic from new growth. The short distance, approximately 200-feet and the State prioritized signal back the traffic up. At the east end it is the EB traffic queuing to make a left turn at the intersection of Madison Way / Ash Way.

This arterial unit is partially programmed in the current TIP (Projects E.53.01 and E.53.02) for widening to a 3-lane urban section with bike lanes and pedestrian facilities for the section from 35th Ave W to Jefferson Way, TIP Project E.53.01 has preliminary funding for engineering (PE) scheduled to begin in 2019 and TIP Project E.53.02 has preliminary funding for engineering scheduled to begin in 2021 for the section from Jefferson Way to Ash Way. This is the first time this AU has been identified with an LOS of F which may be an anomaly and given its significance, DPW will perform two more additional travel time studies at different times of the year to confirm the F LOS.

(AU# 228) Airport Road/128TH ST SW from SR 99 to I-5 SB On & Off Ramps

This urban arterial unit is located in TSA D. A Travel time study was performed on June 12, 2018 for the AM and PM periods and a subsequent forecast analysis was completed. The travel time study and forecast analysis indicated that the existing and forecast travel time speeds and LOS in the AM and PM peak hours to be (:

Existing LOS					**Forecast LOS (last year's results) (Without Projects Referenced Below)**			
AM		**PM**			**AM**		**PM**	
LOS	**MPH**	**LOS**	**MPH**	**Direction**	**LOS**	**MPH**	**LOS**	**MPH**
F	5.55	F	6.52	**EB**	F	6.40	F	7.20
D	15.74	C	18.32	**WB**	D	17.30	C	20.40

The major contributing factors for the existing deficient LOS in the PM EB direction are WDSDOT's two left turn lanes from the I-5 southbound off ramp to 128th St SW and road construction on 128th St SW in the area. These two turn lanes, combined with the State signal at the east end of the I-5 & 128th St SW overpass, continue to cause a significant delay for the EB traffic on 128th St SW between 4th Ave W and I-5. Community Transit (CT) has completed a project to widen the EB shoulder of 128th St SW between 4th Ave W and I-5 to accommodate their new Orange Line express busses. The County along with other Cities and WSDOT have started and will complete the installation of an Adaptive Signal Project on this corridor this year.

DPW will perform a new travel time study and forecast analysis after the Adaptive Signal Project is completed, will continue to analyze the AU and work with WSDOT the other County partners in the Adaptive Signal Project to the extent possible to improve the efficiency of this AU. This arterial unit is a good Ultimate Capacity candidate.

(AU# 287 / AU# 415) 36TH Ave W from Lynn C/L to 164th St SW to 148th St SW

This arterial unit (AU) is located in TSA D. A travel time study was performed on February 13, 2018 and a subsequent forecast analysis completed. The travel time study and forecast analysis indicated that the existing and forecast travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					**Forecast LOS (With Pipeline Only and Not with Project Referenced Below)**			
AM		**PM**			**AM**		**PM**	
LOS	**MPH**	**LOS**	**MPH**	**Direction**	**LOS**	**MPH**	**LOS**	**MPH**
C	22.30	E	15.95	**NB**	D	22.00	E	14.10
C	23.72	E	16.77	**SB**	C	22.60	E	15.30

The major contributing factor for the existing deficient LOS in the PM NB and SB directions is mainly the delays at the 164th St SW intersection. This signal favors the higher volumes for the east and westbound traffic on 164th St SW. This arterial unit is programmed in the current TIP (Project E.40.01) for widening to a three lane section with bike lanes and curb, gutter, planter and sidewalks both sides, with preliminary funding for engineering (PE) which began in 2018. The City of Lynnwood has started construction on their portion of 35th Ave W that runs from the city limits south in to the City. The City's project will improve their section of 35th Ave W to the same standard as the County's project will and the widening of this AU will provide an LOS above standard.

DPW will continue to monitor this arterial unit and prior to the completion of the widening project work to the extent possible to improve the efficiency of this AU and optimizing the signal.

(AU# 293) Gibson Road from SR 99 to 128TH ST SW

This urban arterial unit is located in TSA D. A travel time study was performed on May 8, 2018 and a subsequent forecast analysis was completed. The travel time study and forecast analysis indicated that the existing and forecast travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (With Project Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
D	17.53	E	13.41	**EB**	D	18.30	E	14.50
D	19.44	D	18.80	**WB**	D	18.90	D	19.20

The major contributing factor for the declining LOS in the Existing and Forecast PM EB direction is the backup at the intersection of Gibson Rd and Admiralty Way. There is also an elementary school on the south side of Gibson Rd east of SR 99 that contributes to the backup in the AM EB direction. A roundabout at the intersection of Gibson Rd /Admiralty Way is included in a project programed in the 2019 – 2024 TIP (TIP E.52.01) to widen Ash Way from 164th St SW to Gibson Rd to a three lane section, with preliminary funding for engineering (PE) beginning in 2019 and for right-of-way (RW) in 2021. No funding for construction has been programed at this time.

DPW will continue to analyze this corridor.

TSA D & F

(AU# 457 / AU# 458) Maple Rd / 178th St SW from Lynn C/L to Larch Way

This AU was closed north of the Maple and Ash Way intersection during most of 2018 for the construction of the Maple/Ash intersection project and because of the road closure a travel time study and forecast analysis were not done in 2018. The project has been completed and a new travel time study and forecast analysis will be performed in 2019. The information below is from the 2017 Concurrency Report.

These arterial units (AU) are located in TSA's D and F. AU# 457 is located in TSA D and AU# 458 is located in TSA F. A travel time study performed on March 15, 2017 and a subsequent forecast analysis indicated the travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (Without Project Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH

C	26.78	E	14.41	**EB**	C	23.10	F	11.50
C	25.47	C	26.20	**WB**	C	25.00	C	27.60

This section of Maple Road and 178th Street SW is a 2-lane urban major collector and is the only east-west crossing of Interstate 5 between 164th Street SW on the north and SR 524 to the south. The road is nearly equidistant between the 164th and SR 524 (about a mile from each). Nearly 9,000 vehicles per day use the Maple Road overpass of Interstate 5 to avoid congestion and signals on the other routes.

Factors contributing to the declining LOS are EB traffic queuing at the all-way stop intersection of Maple Road and Butternut Road; a lesser eastbound queue at the all-way stop of Larch Way and 178th Street SW; and the intersection of Ash Way and Maple Road (300 feet east of Alderwood Mall Parkway) is a choke point for EB and WB peak traffic. This arterial unit is programmed in the current TIP (Project E.62) for the construction of full intersection improvements at the intersection of Maple Road and Butternut Road, with preliminary funding for engineering (PE) scheduled to begin in 2021, funding for right-of-way in 2023 and funding for construction in 2023. Improvement of this intersection will provide an LOS above standard.

This AU is at risk in the existing PM EB direction but it is the first time this AU has been identified with an LOS of F, also in the existing PM EB direction, which may be an anomaly and given its significance, DPW will perform two more additional travel time studies at different times of the year to confirm the F LOS.

TSA E

(AU# 330) Broadway Ave from SR 524 to 164TH ST SE

This rural arterial unit that carries urban traffic is located in TSA E. Because there were no issues with the AM existing or forecast LOS a travel time study was performed on October 9, 2018 and a subsequent forecast analysis was completed for the PM period only. The travel time study and forecast analysis indicated that the existing and forecast travel time speed and LOS in the PM peak hours to be:

Existing LOS					**Forecast LOS (Without Project Referenced Below)**			
AM		**PM**			**AM**		**PM**	
LOS	**MPH**	**LOS**	**MPH**	**Direction**	**LOS**	**MPH**	**LOS**	**MPH**
		E	14.83	**NB**			F	12.70
		B	34.14	**SB**			B	33.80

The major contributing factor for the existing and forecast LOS in the PM NB direction for this AU is the backup at the four way intersection of Broadway, 164th St SE, Elliott Rd and Market Street. The backup is caused by NB traffic diverting from SR 9 because WSDOT has not completed the widening of SR 9 to alleviate the heavy volumes on SR 9. Public Works has analyzed the operation of the intersection and has determined that signal improvements are needed to improve the LOS of the intersection.

(AU# 471) Yew Way from 196th St SE to SR 524

This urban arterial unit is located in TSA E. A travel time study was performed on October 9, 2018 for the AM and on April 11, 2018 for the PM and a subsequent forecast analysis was completed. The travel time study and forecast analysis indicated that the existing and forecast travel time speed and LOS in the PM peak hours to be:

Existing LOS					Forecast LOS (Without Project Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
B	28.08	B	31.07	**NB**	C	25.80	B	31.00
F	4.97	D	18.57	**SB**	F	5.6	F	10.50

The major contributing factor for the declining LOS for this AU is the queuing of the SB traffic on Yew Way at the intersection of Yew Way and SR 524 which is caused because the WB/SB SR 524 traffic queuing through SR 524/Yew Way intersection from the signalized intersection of SR 524/SR 522. WSDOT has a project to signalize the intersection as well as adding a NB left turn lane on SR 524. This is the first time an LOS of F has been identified for this AU and may be an anomaly and given its significance DPW will perform two more additional travel time studies at different times of the year to confirm the F LOS.

After WSDOT has completed their project and traffic has the chance to integrate the changes into their driving DPW will reanalyze this AU to determine how effective the changes were.

TSA F

(AU# 217) North Road from SR 524 to 176TH Place SW

WSDOT had a road project to install a roundabout at the south end of this AU at the intersection of North Road and SR 524 and traffic was diverted away from the project. Because of the diversion of traffic from this AU a travel time study and forecast analysis would not have represented normal conditions and were not completed. The project has been completed and a new travel time study and forecast analysis will be performed in 2019.

This arterial unit (AU) is located in TSA F. This section of North Road is an urban major collector with 2 traffic signals along its length. A travel time study performed on November 17, 2017 and a subsequent forecast analysis indicated the travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (With Signal Optimazaation Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
C	25.53	B	34.41	**NB**	C	24.40	B	34.30
F	10.60	C	24.94	**SB**	E	14.90	C	24.10

The major contributing factors for the existing and forecast declining LOS is the SB delay at SR 524 in both the AM and PM peak hours, and to a lesser extent, the delay for the AM SB movement at the

Lynnwood High School signal. The existing LOS F in the AM SB direction is caused by the WSDOT signal at SR 524. The AM SB forecast LOS E is based on optimizing the signals at Lynnwood High School. This arterial unit is a good Ultimate Capacity candidate.

This was the first time an LOS of F has been identified for this AU and may be an anomaly and given its significance DPW, after the WSDOT roundabout project is completed, will perform two more additional travel time studies at different times of the year to confirm the F LOS.

(AU# 220) Alderwood Mall Parkway from 164TH ST SW to LYNN C/L

This urban arterial unit is located in TSA F. A travel time study performed on October 3, 2017 and a subsequent forecast analysis indicated the travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (With Projects Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
C	25.81	E	15.81	**NB**	C	24.50	E	16.40
B	28.62	D	18.17	**SB**	C	23.60	D	19.20

A travel time study was not performed in 2018 but the forecast was completed using the first TIP project listed below (Project C.00.70).

This AU is a 3-lane Urban Major Collector that serves as an important north-south corridor between the Alderwood Mall and Costco commercial areas to the south and all commercial and residential areas to the north, east and west. The major contributing factors for the declining LOS are not the result of a single issue but are comprised of multiple things. This corridor has 3 traffic signals, with a 4th that is under the jurisdiction of the City of Lynnwood and creates significant delays. This corridor is a mix of 2 to 5 lanes but the 2-lane section just north of the midway point can create a bottleneck if traffic is heavy. With people avoiding the I-5 and SR-405 intersection slowdowns and taking surface streets, the corridor also has a large percentage of "pass though" traffic. Finally, the slower 30 mph posted speed, traffic from schools in the area, and pipeline trips, all contribute to the declining LOS. As shown above in the Forecast, the LOS improves

The section of the AU from 164th Street SW to 168th St SW is programed in the 2019 – 2024 TIP (Project C.00.70) for completing existing sidewalk gaps and restripe the road to a full 5 lane section with bike lanes. Preliminary funding for engineering (PE) is in the 2019 ACIP TIP and funding for engineering, right-of-way and construction is programed for 2020.

The section of the AU from 168th Street SW to SR 525 SB on/off ramps is programmed in the 2019 – 2024 TIP (Project E.60) for widening to a 5-lane urban section with bike lanes and pedestrian facilities, with preliminary engineering (PE) programed to begin in 2019, funding for right-of-way (RW) is programed to begin in 2021 and construction (CN) is programed for 2024.

The county will continue with operational analysis to monitor this AU until the projects are completed.

(AU# 278) Poplar Way from Lynnwood C/L to Brier C/L

This urban arterial unit is located in TSA F. Travel time studies were performed on April 10, 2018 for the PM and October 10, 2018 for the AM and a subsequent forecast analysis was completed. The travel time studies and forecast analysis indicated that the existing and forecast travel time speed and LOS in the AM and PM peak hours to be:

Existing LOS					Forecast LOS (Without Project Referenced Below)			
AM		PM			AM		PM	
LOS	MPH	LOS	MPH	Direction	LOS	MPH	LOS	MPH
E	16.86	E	15.34	**NB**	E	15.70	E	14.30
E	14.85	E	13.99	**SB**	E	14.50	E	13.40

This section of Poplar Way is a 2-lane urban major collector with 3 traffic signals along its length and serves as an important north-south corridor between the Brier/Kenmore residential and commercial areas on the south and the Alderwood Mall commercial area along with I-5 / SR 524 access on the north.

The major contributing factors for the declining LOS are not the result of a single issue but are comprised of multiple things, i.e. several signals along the corridor with roads that carry equal or greater amounts of traffic, a large percentage of "pass though" traffic; being only two-lanes; the slower 30 mph posted speed, traffic from schools in the area, and pipeline trips, all contribute to the declining LOS. The section from Lynnwood City Limits to Larch Way is programmed in the current Transportation Improvement Program (TIP) (Project E.54) for widening to a 3-lane urban section with bike lanes, curb, gutter and sidewalk, with funding for preliminary engineering (PE) scheduled to begin in 2021.

DPW will continue to analyze this corridor to determine appropriate solutions to improve the LOS.

Analysis of the 35TH Ave SE Corridor from SR 524 to Seattle Hill Road.

This is one of the fastest growing areas of Snohomish County. The major contributing factor for the decreased LOS in both directions along AUs 204, 207 and 337 is the new building and road construction associated with growth in the area and trips in the pipeline from all the approved (but not completed) and pending developments in the area, and the new Northshore School District (NSSD) high school located at the SE corner of 35th Ave SE and 188th St SE which opened in the fall of 2017.

The NSSD and private developers constructed two new County roads (191st St SE and 39th Ave SE). 191st St SE runs from 35th Ave SE eastward along the NSSD's southern boundary then turns south and becomes 39th Ave SE connecting to Jewel Road. Several new housing developments in the area have been completed, with two being located on opposite sides of York Rd at the York and Jewell Road intersection and one on 39th Ave SE across from the new high school.

The County completed a Small Areas Transportation Study to determine what other road projects in the area would help to alleviate the pressure on the 35th Ave SE corridor. The study determined that the extensions of 43rd Ave SE to the north connecting to Sunset Road and to the south connecting to SR 524 would provide relief.

Two new signals on 35th Ave SE at the 198th St SE/197th St SE intersections have been completed as well as the signal at 35th Ave SE and 188th St SE (Grannis Rd). Fine tuning of the signal timing is still ongoing to optimize operations along the corridor.

Improvements programed and funded in the current Transportation Improvement Program (TIP) to improve the LOS are:

- Project E28.05. 35th Ave SE/39th Ave SE (York Rd), Corridor widening from SR 524 to 180th St SE, Phase II. Construction of this project is programed to start in 2020 and end in 2021.
- Project E28.06. 35th Ave SE, From 180 St SE to 152 St SE (Seattle Hill Rd), Phase I. Construction of this project started in 2018 and is expected to be completed by 2020.
- Project E.59. 43rd Ave SE, From SR 524 to Sunset Road at 180th St SE. Construction of this project is programed to start in 2021 and end in 2022.

A travel time study performed on March 20, 2018 for the AM and a subsequent forecast analysis, indicated that when analyzed as a contiguous corridor the existing and forecast travel time speed and LOS in the AM and PM peak hours are:

Existing LOS					**Forecast LOS ((With Projects Referenced above)**			
AM		**PM**			**AM**		**PM**	
LOS	**MPH**	**LOS**	**MPH**	**Direction**	**LOS**	**MPH**	**LOS**	**MPH**
C	26.43	E	14.64	**NB**	C	25.10	E	15.60
D	20.43	C	26.98	**SB**	D	21.00	C	26.00

When the LOS is measured along the entire corridor, the LOS improves in the existing NB AM & PM & the SB PM directions, and for all the forecast AM & PM directions. Because of the funded and programmed road capacity projects (listed above), and signal timing modifications the LOS is expected to improve.

DPW will re-analyze this corridor after the construction project on AU's 204 and 207/336 is completed.

Summary Tables

Table 1: Summary of Level-of-Service (LOS) Status

Table 1 is a summary of the LOS of all the County's arterial units for the past six years, not just those at risk of falling into arrears. The Table represents those Arterials above or below the screening level in the LOS determination process. Above the screening level means the ADT volume on the unit has not reached the thresholds in SCC 30.66B.101 needed to trigger screening. Below the screening level means that the ATD volume has reached or exceeded the ADT thresholds in SCC 30.66B.101.

The top half of the table gives a general breakdown of those AU's above or below the screening level. The bottom half of the table shows a more detailed breakout of just those AU's below the screening level.

Breakout of The No. of Arterial Units (AU) Above or Below Screening Level							
LOS STATUS[1]	**2014**	**2015**	**2016**	**2017**	**2017[2]**	**2018**	**% of Tot**
Total number of arterial units[3]	267	264	273	273	273	**273**	**100.0%**
Arterial Units above screening level	235	227	237	236	236	**236**	**86.4%**
Arterial Units below screening level	32	37	36	37	37	**37**	**13.6%**
Breakout Of Arterial Units (AU) Below Screening Level[4]							
Monitoring (M) level	12	20	11	15	4	**11**	**4%**
Operational Analysis (OA) level [5] (Includes future LOS forecast)	17	14	22	22	35	**26**	**9.5%**
Arterial units in arrears (AUIA)	0	0	0	0	0	**0**	**0%**
Total AU below screening level	32	37	36	37	39	**37**	**13.5%**

[1] See "*Review of Concurrency Management System"* described on page 5 for an explanation of the various 'tiers' of the concurrency management system. In simple terms, arterial units above the screening level are clearly passing the LOS test and for those below at the monitoring level as congestion increases the level of analysis typically goes to operational analysis.

[2] In January 2018 DPW decided to change the April 1st to March 31st time frame the report has been representing to now represent from January 1st to December 31st of each year.

[3] The number of AU's shown represents the total number of AU's for each year and may not match those identified in Table 4 which only shows those AU's that have been upgraded to Monitoring and then are removed if they stay at Monitoring for two consecutive years.

[4] See Table 4 "Status of Arterial Units Compared with Prior Year" for more detailed information for all arterial units at this level.

[5] Those AU's below the screening level identified as either OA, or OA-AR both utilize Future Level of Service Forecasts.

Table 2: Summary of Arterial Units at Risk

Table 2 shows a summary of the arterial units at risk. The data includes; the TSA, the AU number, limits of the AU, if the AU is listed in Table 14 of the adopted Transportation Element (TE) and if so the identified year of completion, the improvement type, the status and number of the improvements in the adopted TIP, if the AU is located within a pending annexation area, and if the AU is a candidate for being designated at Ultimate Capacity. The abbreviations used in the table are:

W	**=**	Widening of an Existing Arterial Road	**IP-ACPTIP**	**=**	Improvements Programmed in Current ACPTIP
N	**=**	New Arterial Road Alignment	**IP-TIP**	**=**	Improvements Programmed in Current TIP
IS	**=**	Intersection Improvements	**PD-TIP**	**=**	Project Design Programmed in Current TIP
NP	**=**	Not Programmed	**RW-TIP**	**=**	Right-of-way Acquisition Programmed in Current TIP
DR	**=**	Design Report	**OI**	**=**	Operational Improvement
PIC	**=**	Programmed Improvements Completed	**NIT**	**=**	Not in TIP
WDI	**=**	WSDOT Dependent Improvement	**ANNEX PEND**	**=**	Annexation Pending
UCC	**=**	Ultimate Capacity Candidate			

This table is organized in descending order starting with TSA then AU Number.

TSA	AU No.	Name and Limits of Arterial Unit	In TE Table 14	Table 14 Identified year of Completion	Imp Type	Imp Status and Number in Adopted TIP	Annex Pend	UCC
C	353	Airport Way from SR 9 to Snohomish City Limits	NO	NA	NA	NIT	NO	NO
D	204	35th Ave SE from 168 ST SE to Seattle Hill Road	YES	2021	W	IP-TIP, RW-TIP (E.28.06)	NO	NO
D	220	Alderwood Mall Parkway from 164TH ST SW to LYNN C/L	YES	2035	W-10	IP-TIP (C.00.70) PD-TIP (E.60)	NO	NO
D	225	148th / Jefferson Way /150th St SW / Madison Way from SR 99 to Ash Way	NO	NA	NA	PD-TIP, RW-TIP (E.53.01 & 53.02)	NO	NO
D	228	Airport Rd/128th St SW from SR 99 to I-5 SB On & Off Ramps	NO	NA	NA	PIC	NO	YES

TSA	AU No.	Name and Limits of Arterial Unit	In TE Table 14	Table 14 Identified year of Completion	Imp Type	Imp Status and Number in Adopted TIP	Annex Pend	UCC
D	287 / 415	36TH Ave W from Lynnwood City Limits to 148th ST SW	NO	NA	NA	PD-TIP, RW-TIP (E.41.01)	NO	NO
D	293	Gibson Road from SR 99 to 128TH ST SW	YES	2035	W	NIT	NO	NO
D / F	457 / 458	Maple Road/178TH St SW from Lynn City Limits to Larch WY	NO	NA	NA	NIT	NO	NO
E	471	Yew Way from Broadway Ave to SR 524	NO	NA	NA	NIT	NO	NO
E	330	Broadway Ave from SR 524 to 164TH ST SE	NO	NA	NA	NIT[9]	NO	NO
F	217	North Road from SR 524 to 176th Pl SW	NO	NA	NA	PIC (E.61)	NO	YES
F	278	Poplar Way from Lynnwood City Limits to Brier City Limits	YES	2028	W	PD-TIP (E.54)	NO	NO

[9] Though there is no project in the TIP for this corridor, the current issue with the AU is the Broadway Ave/164th St SE/Elliott RD intersection, which is in the TIP under Project D.42.01.

Table 3: Summary of Concurrency Determinations

Table 3 shows a summary of the concurrency determinations that were made in the previous year. The data is organized by TSA, type of development (residential or non-residential), and the number of peak hour trips generated by the development.

Size and Type of Development	**Transportation Service Areas**						**Year By Year Totals for Last 6 Years**					
	A	**B**	**C**	**D**	**E**	**F**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**
Residential (< = 50 PHT)	1	2	2	38	3	14	**60**	87	47	47	54	61
Residential (> 50 PHT)	0	0	0	3	0	0	**3**	5	5	5	5	5
Non-Residential (< = 50 PHT)	1	2	0	5	4	0	**12**	16	9	9	5	7
Non-Residential (> 50 PHT)	0	0	0	0	0	0	**0**	5	2	2	1	1
Total	**2**	**4**	**2**	**46**	**7**	**14**	**75**	113	63	63	65	74

Table 4: Status of Arterial Units Compared With Prior Year

Table 4 shows those arterial units whose current status, as compared to the prior year, is either: Operational Analysis (OA), At Risk (AR), or In Arrears (AUIA). A status of Screening (S) or Monitoring (M) will only be used when the status has improved to that level from the prior year. If the AU remains at screening or monitoring for a second year it will be removed from the list. The definitions of the different arterial unit status and methods for determining that status can be found at the beginning of this report and in DPW Rule 4224.

The abbreviations used in the table are:

Arterial Unit Status

S	=	Screening
M	=	Monitoring
OA	=	Operational Analysis
AR	=	At Risk
AUIA	=	Arterial Unit in Arrears

OA Level Study Terms

TTS	=	Travel Time Study
IntTTS	=	Intermediate TTS
RECON	=	Reconnaissance

Additional Terms

LOS	=	Level-of-Service
ADT	=	Average Daily Traffic
FCST	=	Forecast
V/C	=	LOS estimate based on comparison of volumes
W / IMPS	=	With fully-funded improvements completed or expected to be complete within six years
U	=	Urban
R	=	Rural
PEND	=	Pending
UNIT	=	Number assigned to the arterial unit
NB	=	North Bound
SB	=	South Bound
WB	=	West Bound
EB	=	East Bound
AM	=	The morning (AM) Peak Hours for traffic
PM	=	The evening (PM) Peak Hours for traffic
NA	=	Not Applicable

The Arterial Units identified below are listed by TSA in descending order from TSA A to TSA F (starting with the highest relevant TSA), then the AU number (lowest to highest). Arterial Units identified by two numbers, i.e. 287/415, indicate the arterial unit has a TSA boundaries dividing the AU.

Table 4 below is sorted by the TSA the AU is in, the AU No., the road name, the AU limits (from/to), if the AU is Rural or Urban (R/U), the prior year's status, the current years status, then the notes for the current year.

TSA	UNIT	ROAD NAME	FROM	TO	R/U	2017	2018	2018 Notes
C	353	AIRPORT WY	SR 9	SNOH C/L	U	OA-AR	OA-AR	PM NB EXIST & FCST LOS F, PM SB EXIST & FCST LOS D. AM SB EXIST AND FCST LOS D.
D	204	35 AVE SE	168 ST SE	SEATTLE HILL RD	U	OA-AR	OA-AR	PM NB EXIST LOS F, FCST LOS D WITH 43 AVE SE & TIP IMPS.
D	220	ALDERWOOD MALL PKWY	164 ST SW	LYNN C/L	U	OA-AR	OA-AR	PM NB EXIST AND FCST LOS E w/ TIP C.00.70, PM SB EXIS. AND FCST LOS E w/ TIP IMPS C.00.70. (COMP 5-LANES 164TH TO 168TH).
D	225	148 &150 ST SW/JEFFERSON/MADISON	SR 99	ASH WY	U	OA-AR	OA-AR	AM EB & WB FCST LOS D, AM WB EXIST LOS D; PM EB FCST LOS F (EXIST LOS D), PM WB FCST LOS E (EXIST LOS D).
D	227	BEVERLY PARK RD	SR 525	AIRPORT RD (EVT)	U	OA-AR	OA	PM SB FCST LOS E, EXIST LOS D. AM SB EXIST AND FCST LOS D.
D	228	AIRPORT RD/128 ST SW	SR 99	I-5 SB ON/OFF RAMPS	U	OA-AR	OA-AR	AM & PM EB EXIST AND FCST LOS F w/ ADAPTIVE SIGNAL CONTROL. AM WB EXIST AND FCST LOS D.
D	230	112 ST SW	EVT C/L	EVT C/L	U	OA	OA	FCST EB PM LOS D ALL OTHER AM & PM EB/WB EXIST & FCST LOS D.
D	287	36 AVE W	LYNN C/L s/o 164 ST SW	164 ST SW	U	OA-AR	OA-AR	PM NB & SB EXIST AND FCST LOS E. AM NB FCST LOS D.
D	290	MANOR WAY	164 ST SW	SR 99	U	S	M	PM NB FCST LOS D.
D	293	GIBSON RD/134 ST/4 AVE/ASH WY	SR 99	128 ST SW	U	OA	OA-AR	PM EB EXIST & FCST LOS E, PM WB EXIST & FCST LOS D. AM EB & WB EXIST & FCST LOS D.
D	297	MEADOW RD & PL/ MERIDIAN/130TH/3 AVE SE	164 ST SW	SR 96	U	OA	M	AM SB FCST LOS D.

TSA	UNIT	ROAD NAME	FROM	TO	R/U	2017	2018	2018 Notes
D	300	116 ST SE	EVT C/L	35 AVE SE	U	M	OA	PM EB FCST LOS E, EXIST LOS D. PM WB EXIST & FCST LOS D.
D	304	LARCH WY	164 ST SW	TSA F/ 178 ST SW	U	OA	OA	AM NB/SB EXIST LOS D. AM NB FCST LOS D, AM SB FCST LOS E. PM NB EXIST & FCST LOS D.
D	334	NORTH RD	JONATHAN RD	164 ST SW	U	OA	OA	AM NB FCST LOS D, AM SB EXIST LOS D, FCST LOS E.
D	352	4 AVE W	112 ST SW	EVT C/L	U	OA-AR	OA	AM NB/SB EXIST & FCST LOS D. PM NB EXIST. & FCST. LOS E. PM SB EXIST. & FCST. LOS D. FCST. PENDING WITH NEW TTS.
~~D~~	415	36/35 AVE W	164 ST SW	148 ST SW	U	OA-AR	OA-AR	PM NB & SB EXIST. AND FCST. LOS E. AM NB FCST. LOS D.
D/E	207/336	35 AVE SE	188 ST SE	168 ST SE	U	OA-AR	M	AM SB EXIST AND FCST LOS D w/ 43 AVE SE DIVERSION
D/F	457/458	178 ST SW/MAPLE RD	LYNN C/L	LARCH WAY	U	OA-AR	OA-AR	PM EB EXIST LOS E, FCST LOS F. POST CONSTRUCTION TTS NEEDED.
E	330	BROADWAY AVE	SR 524	164 ST SW	U	M	OA-AR	PM NB FCST LOS F, EXIST LOS E (IMPROVES TO LOS C WITH OPTIMIZED SIGNAL AT BROADWAY & ELLIOTT/164TH BUT NOT FUNDED FOR CONSTRUCTION).
E	354	PARADISE LAKE RD	SR 522	KING CO LINE	U	OA	M	PM WB EXIST AND FCST LOS D.
E	471	YEW WAY	BROADWAY AVE	SR 524	U	OA	OA-AR	AM SB EXIST LOS F, FCST LOS F WITH PROGRAMMED WSDOT SIGNAL AT SR 524. PM SB EXIST LOS D, FCST LOS F.

TSA	UNIT	ROAD NAME	FROM	TO	R/U	2017	2018	2018 Notes
E/F	209/332	39 AVE SE	228 ST SE	SR 524	U	OA	OA	AM NB & SB FCST LOS E. PM NB FCST LOS D.
E/F	420/337	YORK RD/35 AVE SE	SR 524	188 ST SE	U	OA-AR	OA	AM SB FCST LOS E, EXIST LOS D; PM NB EXIST LOS E, FCST LOS D; PM SB FCST LOS D (FCST'S WITH 43 AVE SE DIVERSION AND TIP).
F	214	212 ST SW/LARCH WY	MTLK TERR C/L (792 ft. w/o 212th/LARCH WAY)	CYPRESS WY (N LEG)	U	M	OA	PM EB EXIST LOS D, FCST LOS E.
F	215	204 ST SW	LYNN C/L	28 AVE W	U	OA	OA	PM EB AND WB EXIST LOS D. PM EB FCST LOS E, PM WB FCST LOS D.
F	217	NORTH RD	SR 524	176 PL SW	U	OA-AR	OA-AR	AM SB EXIST LOS F. FCST LOS E WITH OPTIMIZATION OF BOTH LYNNWOOD HS SIGNAL & SR 524 SIGNAL. WSDOT APPROVAL HAS BEEN GRANTED.
F	278	POPLAR WY	LYNN C/L	BRIER C/L	U	OA-AR	OA-AR	AM/PM NB & SB EXIST AND FCST LOS E.

Appendix A Map Depicting Arterial Units At Risk